

CLAIMS

What is claimed is:

1. An antenna tower reinforcement, for use with an antenna tower, comprising:
 - a plurality of spacer elements attached to the tower;
 - at least one stiffening element attached to at least two of the plurality of spacer elements such that the stiffening element reinforces the tower along a plane parallel to the surface of the tower.
2. The antenna tower reinforcement of claim 1, wherein the at least one stiffening members are structural steel members.
3. The antenna tower reinforcement of claim 1, wherein the plurality of spacer elements are structural steel elements.
4. The antenna tower reinforcement of claim 3, wherein the plurality of spacer elements are attached to the tower by welding.
5. The antenna tower reinforcement of claim 1, wherein the plurality of spacer element and the at least one stiffening member are made of structural steel, the plurality of spacer elements being welded to the tower and the at least one stiffening member being welded to at least two of the plurality of spacer elements.
6. The antenna tower reinforcement of claim 1, wherein the at least one stiffening element extends from near the base of the antenna to a height less than the height of the antenna.
7. The antenna tower reinforcement of claim 1, wherein the stiffening members are comprised of any of a plurality of structural steel shapes.
8. The antenna tower reinforcement of claim 7, wherein the structural steel shapes are steel plates welded together into a generally "Z" shaped member.

9. The antenna tower reinforcement of claim 1, including three high strength stiffening members spaced equally apart on the circumference of the tower.

10. The antenna tower reinforcement of claim 1, including two or more stiffening members spaced about the circumference of the tower.

11. The antenna tower reinforcement of claim 1, wherein the stiffening member is a structural element comprising one or more structural plates welded together.

12. The antenna tower reinforcement of claim 11, wherein one of the structural plates is attached to at least one of the plurality of spacers and is subsequently welded to another structural plate to form a stiffening member.

13. An antenna tower reinforcement, for use with an antenna tower, comprising:

a light-weight shell having a cross-sectional shape similar to that of an antenna tower and a diameter greater than the tower;

a plurality of spacers attached to the tower;

at least one stiffening members distributed between said shell and antenna tower and attached to at least two of the plurality of spacers;

the shell being attached to the at least one stiffening member and formed so as to have an outward appearance similar to that of the antenna tower such that when the tower and shell combination is viewed the tower and shell combination appears to be the tower alone.

14. The antenna tower reinforcement of claim 13, wherein the at least one stiffening members are structural steel members.

15. The antenna tower reinforcement of claim 13, wherein the at least one stiffening members are attached to the spacers by welding.

16. The antenna tower reinforcement of claim 13, wherein the light-weight shell is constructed of light gauge galvanized steel.

17. The antenna tower reinforcement of claim 13, wherein the light-weight shell extends from near the base of the antenna to a height less than the height of the antenna.

18. The antenna tower reinforcement of claim 17, wherein the attachment of the shell to the at least one stiffening member creates a volume between the shell and tower, extending from the base to the top of the shell, wherein cables may threaded.

19. The antenna tower reinforcement of claim 13, wherein the stiffening members are comprised of a plurality of structural steel shapes.

20. The antenna tower reinforcement of claim 19, wherein the structural steel shapes are steel plates welded together into a generally "Z" shaped member.

21. The antenna tower reinforcement of claim 13, including three stiffening members spaced equally apart on the circumference of the tower, each being attached to at least two of the plurality of spacers.

22. The antenna tower reinforcement of claim 13, wherein each stiffening members is approximately the length of the shell and when attached to the tower and shell is hidden by the shell.

23. A method of reinforcing a monopole antenna tower including the steps of:
providing at least one structural stiffening element;
providing a plurality of structural spacer elements;
attaching the spacer elements to the tower in spaced apart configuration; and

attaching the at least one stiffening element to at least two of the plurality of spacer elements such that the stiffening element is in a plane parallel to the surface of the tower.

24. The method of reinforcing a monopole antenna tower of claim 23, including the steps of providing a light-weight shell having a cross-sectional shape similar to that of an antenna tower and attaching the light-weight shell to the structural stiffening elements.

25. The method of reinforcing a monopole antenna tower of claim 23 including the steps of welding the plurality of structural spacer elements to the tower and welding the at least one stiffening element to at least two of the spacer elements.

26. The method of reinforcing a monopole antenna tower of claim 25 including the steps of attaching the at least one stiffening members to the shell.

27. A method of reinforcing a monopole antenna tower comprising the steps of:

providing a shell having a cross-section similar to the cross section of the monopole antenna and a diameter greater than the diameter of the antenna and a length less than the length of the antenna;

providing a plurality of spacer elements attached to the tower;

providing three stiffening elements having a first and second plate section spaced apart by a structural flange;

attaching each of the stiffening elements, by the first plate section of each to at least two of the plurality of spacer elements by welding;

attaching the shell to the second plate section of the structural stiffening elements, such that the shell is attached to the tower.